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Using a Multi-Agent System to Investigate the Benefits of RFID Technology in the Reconfiguration of Disrupted Supply Chains

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Abstract: Radio frequency identification (RFID) technology has gained increasing popularity in businesses to improve operational efficiency and maximise costs saving. However, there is a gap in the literature exploring the enhanced use of RFID to substantially add value to supply chain operations. One of these enhanced uses is leveraging the enhanced track-and-trace capabilities offered by RFID to facilitate efficient reconfiguration of a supply chain logistics network in the event of disruption. This paper presents a multi-agent system which models a supply chain logistics network. It is comprised of autonomous and intelligent agents representing the key entities in the supply chain. We propose the use of this multi-agent system to examine the benefits of RFID over a traditional barcode-based tracking system in efficiently reconfiguring supply chains with varying levels of collaboration between partners in response to dynamic disruptions in production at key members of the supply chain.

Key words: Supply chain management, RFID, multi-agent system, supply chain reconfiguration, contract net

Identification of the Best Resources to Implement an Educational Activity. A Semantic Web Approach

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Abstract: This paper introduces a recommendation system for educational resources in specific learning contexts, that is, a tool that receives as input a description of the technical and pedagogical characteristics of a learning scenario and generates a ranked list including the most suitable resources to implement it from a knowledge base of available resources. The criteria taken into account to provide these recommendations are not based on the preferences or previous behavior of an individual, but on the actual characteristics of the target learning context, like subject, language, tools available, age range, etc. The multi-criteria identification algorithms for each the type of resource considered (tools, events and people that may contribute to the educational activity), the enrichment techniques used to populate the knowledge base and preliminary results obtained with a prototype application that receives as input educational activity descriptions and provides as output the collection of resources that best fulfill the requirements of those activities are discussed. This work has been performed in the framework of the 7th FP project iTEC-Innovative Technologies for an Engaging Classroom.

Key words: Recommender systems, multi-criteria analysis, semantic technologies, learning resources, record linkage, enrichment

The Optimal Mix of Propane and Butane Ratio of Taiwan General Liquefied Petroleum Gas

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Abstract: In a competitive environment, profit and market price would affect companies' production and a customer's purchase. General Liquefied Petroleum Gas (LPG), a liquid petroleum gas, is a flammable mixture of hydrocarbon gases used as a fuel in heating appliances and vehicles. Gas costs would affect the national level commodity price. Even small oil price fluctuations would generate commodity price inflation. In the national standard, propane and butane mixing ratio (PBMR) is a controllable variable, which offers fuel in heating or vehicles power appliances. This research constructed a cost model, except price function, which also can maximize the flame supply in flame recession stage, in order to fit customers' expectations while maximizing energy usage. The research adapted on-line

computing for obtaining half monthly propane and butane price. The study developed a chemical engineering burning simulator, with a mix of propane and butane in a certain ratio at a certain room temperature and based on the proposed model's constraints. A PHP based equation constructor was also proposed. Finally, decision makers would sell each ratio of liquefied petroleum gas tank with different product labeling and price; perhaps indirectly causing a carbon reduction effect. Future studies suggest considering the inclusion of plain and mountain locations burning data for further discussion.

Key words: Propane and butane ratio, P/B ratio, LPG, OLAP, chemical simulator

Using the TV Set as a Focal access Point to Online Services and Applications

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Abstract: The fact that some collectives as our elders or the disabled spend much of their time at home makes the TV to become their primary access to entertainment. This proposal is intended to take advantage of this situation and transform the traditional TV set into a comprehensive online services and home automation platform. This paper discusses a novel TV-based adaptive and self-configurable platform for the digital home that provides on-demand access to a broad portfolio of multimedia interactive services and applications. This system is based on a low-cost hardware architecture that integrates a wide range of interaction and control devices to dramatically improve the users' experience. This platform supports access to popular online services and applications and offers additional features like the provision of personalized multimedia content, the remote monitoring of a wide range of vital parameters, guidance to perform rehabilitation activities, smart adaptation of services and interfaces to the specific physical and cognitive characteristics of individual users and the centralized control of home automation devices. Indeed, accessibility has been a major concern, as this proposal is intended to facilitate access to new information and communication technologies to elder and disabled people. The solution proposed is open and independent of specific hardware and software providers and implements a modular add-on strategy that facilitates customization and the inclusion of new functionalities.

Key words: Control devices, tele-assistance, interactive TV, smart home, adapted interfaces

On a Mathematical Programming Problem of Room Assignment to Hotel Booking Plans on the Web

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Abstract: This paper proposes a mathematical programming problem of hotel room assignment for reservations with booking plans on the Web. This problem includes random booking rates of plans in each period and random restitution rate from travel companies and hence, it is not well-defined. Therefore, the chance constraint with the target booking rate determined by the hotel is introduced in stochastic programming. Furthermore, the deterministic equivalent transformations using a scenario-based approach derived from random variables are performed and the proposed model is approximately formulated as a linear programming problem. Our proposed model is flexibly applied to various types of Web hotel booking systems to obtain not only the target booking rate but also maximizing the total profit.

Key words: Hotel room assignment problem, Booking plans, Random booking rate, Stochastic programming problem, Scenario-based approach

Using Personal Computers (PCs) in Teaching Writing Skills

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Abstract: This article investigated the role of computer in instructing writing skills in Second Language Acquisition (SLA). Research problem focused on discovering the significant difference between learners' acquiring writing proficiency with or without using personal computers (PCs). The hypothesis was that computer can help teachers provide their L2 learners with appropriate correction feedback on their writing tasks through e-mailing. Two groups of students including 40 intermediate L2 learners were randomly divided into experimental group and control group. They wrote 480 one- paragraph essays in 12 sessions. The experimental group received teacher's feedback via e-mailing and the control group was given instructions through pen and paper procedures. Data were analyzed through a series of *t*-test statistics. The results showed that there was a significant difference between the two groups ($p < .05$). In other words, the experimental group outperformed the control group in writing one- paragraph narrative essays.

Key words: e-mailing, personal computer (PC), writing, narration, SLA

Cloud Daisy

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Abstract: Cloud Daisy is a computer program which helping in audiobook creating process and in data sending/transferring process. It's make a volunteer or anyone who interest can create audiobook easily more than the past and the blind also access system easily more than other programs. And we also include social network in to program to judging the quality of audiobooks by voting to prove quality in social network, that will make book creator feel more enthusiastic to create high quality books for the blind.

Key words: Daisy, cloud, blind, social network, web base

The use of ICT and Technology in Language Teaching and Learning

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Abstract: The use of technology in language teaching and learning is an interesting issue for all teachers and practitioners in the field. The importance of this issue is reflected in the large amount of the literature concerned with technology in language classrooms. In this paper, we are going to highlight some of the basic ideas discussed in relation to technology and its implementations in language learning and teaching. Butler-Pascoe and Wiburg (2003), Schwartz and Beichner (1999), Warschauer and Meskill (2000) among others are the most informative references about the use of ICT in language teaching and learning.

Key words: Technology, teaching, learning, ICT

Applying Level Set Methods in Inverse Problems

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Abstract: There are mainly two categories of image reconstruction algorithms, the direct algorithm and the iterative algorithm which was used in this publication. The forward problem can be solved by the finite element method, immersed interface method or boundary element method. The representation of the shape of the boundary and its

evolution during an iterative reconstruction process is achieved by the level set function, the Chan-Vese model or by the variational level set method.

Key words: Level Set method, mumford-shah model, electrical impedance tomography, finite element method

Enhanced Multi-Hop LEACH-Based Clustering Protocol for Energy Efficiency in WSNs

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Abstract: The large-scale deployment of energy-constrained wireless sensor networks (WSNs) and the need for multi-hop data aggregation require efficient organization of the network topology to simplify the routing task, balance the load and prolong the network lifetime. Clustering has proven to be an effective approach for organizing the network into a connected hierarchy. In this paper, we analyze the effectiveness of LEACH and LEACH-based protocols in extending the lifetime for energy-constrained wireless sensor networks. An improved LEACH clustering protocol is proposed for the purpose of selectively electing cluster-heads, multi-hop aggregating data and dynamically adjusting the transmission power in WSNs. Using Castalia simulator, we suggest these contributions could balance network energy consumption and extend the network life more effectively.

Key words: Wireless sensor network, energy, LEACH, multi-hop routing, transmission power

Application of Information and Communication Technology (ICTs) in Reproductive Health Care Services in Health Centers of Shirvan (North Khorasan, Iran)

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Abstract: This study analyzes the potential impact of information and communication technologies (ICTs) in the delivery of reproductive health care services. Twelve health establishments located in the districts under the coverage of the micro-Telco were selected. Of the twelve establishments, only ten were found open at the time of the visit. A total of 15 surveys were personally administered by the author. A questionnaire was designed to identify the reproductive health information needs of health center workers and how ICT could help to satisfy those needs. The analysis of questionnaire data was conducted using the MINITAB v14.2 statistical software application. The results show that although health center workers believe that the use of ICTs would allow them to have better access to health information and therefore, improve the quality of the health care provided, they fail to see how ICTs could satisfy most urgent needs such as lack of qualified personnel and medical equipment. This study was undertaken to assess the current health information needs of health facilities in the area of reproductive health care; however, similar analyses can be conducted to assess more general health care needs.

Key words: ICTs, reproductive health care, Shirvan